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Bank Merger Premiums: Analysis and Evidence

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I. Introduction

Bank mergers and acquisitions have increased dramatically in recent years. This growth is illustrated in Table 1, which provides a summary of both the number and dollar amounts of assets acquired in bank mergers from 1966 through 1985. For example, from 1976 through 1980 the average annual number of bank mergers was 156; from 1981 through 1985 the number of bank mergers per year almost tripled to 441. As important, for the entire 5-year period from 1976

Table 1

Absorptions, Consolidations and Mergers:
Number of Combinations per Year

Year	No. of Combinations	Year	No. of Combinations
1949	80	1968	134
1950	93	1969	153
1951	81	1970	155
1952	101	1971	103
1953	116	1972	126
1954	209	1973	102
1955	232	1974	126
1956	189	1975	99
1957	161	1976	144
1958	153	1977	161
1959	169	1978	182
1960	132	1979	235
1961	138	1980	136
1962	183	1981	232
1963	154	1982	310
1964	138	1983	457
1965	149	1984	418
1966	133	1985	504
1967	137		

Adapted from the *Annual Report of the FDIC* and various issues of *Mergers and Acquisitions*. The number of combinations includes commercial banks, stock savings banks, nondeposit trust companies and mutual savings banks.

through 1980 the *total* assets acquired in bank mergers was 35 billion dollars; for *each year* since 1982 the total assets acquired in bank mergers exceeded this sum. As regional compacts become closer to being a reality, the number and dollar amounts involved in bank mergers and acquisitions is sure to increase.

As a result, understanding the bank merger process has become increasingly important to both bankers and policy-makers. In particular, virtually every bank is a potential target and a potential bidder. As such, an important issue to the bank is what is an appropriate purchase (sale) price for a bank. Since most bank stock is not publicly traded in an active market, the answer to this question is not directly observable.

The purchase price of a bank will be primarily related to four factors: the bank-specific financial characteristics, the operating market environment, the regulatory environment, and the way the merger is structured (e.g., taxable vs. nontaxable). Additionally, the merger premium may be affected by the number of potential bidders and potential target banks. By understanding how these variables interact in determining merger premiums, a bank can determine an appropriate bid or ask price in a merger situation.

Examination of the determinants of bank merger premiums can also provide evidence on other issues of concern to bankers and regulators. For example, the relationship between market concentration (CR) and bank performance has been a topic of continuing debate. Most studies have examined this issue by regressing bank performance measures on CR and testing the significance of the coefficient on CR. To the extent merger premiums are positively correlated with CR, it may be possible to infer evidence that concentration results in monopoly rents being earned. Also, by identifying the market characteristics that affect the premium a bidder is willing to pay, the desirability of market entry by the bidder may be assessed. This can help bank regulators in, for example, forecasting *de novo* entry and in understanding the evolution of bank market structure. As a final example, examination of the determinants of bank merger premiums may provide insights into the motives underlying bank mergers.

An equally relevant issue is the appropriate structure of a merger or acquisition offer. Every bank should be aware of the various ways to structure a merger (e.g., tax-free, use of a subsidiary as an acquiror) and the implication of each structure for factors such as inheritance of tax attributes, treatment of asset values and the medium of exchange used in consummating the merger. The regulatory environment may also play a significant role in determining the structure (and pricing) of a merger. State laws may require a merger to be

structured in a particular fashion so as not to violate state branching laws or regulations. State merger regulation may impede or enhance the merger process and play a substantial role in determining the level of bank merger activity, the pricing of bank mergers and the effectiveness of the market for corporate control.

These issues are also important to policy-makers, such as the Federal Reserve Board, which must rule on the permissibility of bank mergers. Further, especially as regulatory barriers fall, such as the prohibition on interstate banking, such mergers may change the structure and competitiveness of banking markets. By understanding the implications of alternative merger regulation, structures, and merger premiums, policy-makers can better predict the effect of regulatory change on bank merger activity and the structure of the banking system.

The purpose of this monograph is two-fold. First, to describe the alternative techniques that can be used to structure bank mergers. In addition, we describe some of the relevant regulation of bank mergers and how structuring a merger in a certain manner can circumvent or minimize regulatory pitfalls. Second, we empirically analyze the determinants of merger premiums. This analysis should provide important insights into the market valuation of commercial banks as well as motives concerning bank mergers and performance-structure issues.

The monograph is divided into six sections. Section II describes some of the regulations that may affect the merger decision and how to structure the merger. Section III describes federal regulation of bank mergers with particular attention to interstate banking. Section IV discusses the alternative methods of deal structuring with special reference to tax implications, since taxes can be the overriding factor in structuring a merger. Section V begins the analysis of merger premiums by describing the data and sample period employed. We then present the estimated model and the empirical findings. Section VI contains a summary and conclusion.

II. Regulations, Regulators, and the Structuring of Bank Mergers

The two major federal regulations affecting bank mergers are the Bank Holding Company Act (BHC Act) and the Bank Merger Act. The BHC Act requires approval by the Board of Governors of the Federal Reserve System (Board) of any action that causes a bank to become a subsidiary of a BHC. The necessity of Board approval, however, also applies to what might normally be considered non-merger situations. In particular, Board approval is required if the acquisition by a bank holding company of direct or indirect ownership control of any voting securities of a bank or BHC results in the company's control of more than 5% of outstanding shares of any class of voting securities of the acquired firm.

The above, however, does not mean that all mergers involving BHCs are subject to approval by the Board. Regulation Y, which deals with BHCs and change in bank control, states that any merger of a subsidiary bank of a BHC with another bank (regardless of whether that bank is affiliated or unaffiliated) requires approval of the surviving bank's federal supervisory agency or under the Bank Merger Act. In particular, if the surviving bank is a national bank, the Office of the Comptroller of the Currency (OCC) will rule on the merger application. If the surviving bank is a state-chartered, Federal Reserve member bank, the Federal Reserve Board has authority. For state-chartered non-members, the Federal Deposit Insurance Corporation (FDIC) has authority. On all mergers, the Justice Department has thirty days to challenge an agency approval.

This implies that BHCs have considerable latitude in deciding what regulatory agency will rule on the permissibility of a given bank merger. To see this, suppose there is a bank holding company with subsidiary bank A, which is a national bank. This holding company wants to acquire bank B, which is a state-chartered non-member institution.

If the BHC wishes to have the Federal Reserve Board rule on the merger's permissibility, it may simply acquire target bank B directly. Payment can be made with cash, stock or other securities and the target bank becomes a subsidiary of the holding company.

To avoid an application for approval to the Board, the holding company can merge its subsidiary bank A with bank B and

choose which bank will be the surviving bank. If bank A survives, the OCC has jurisdiction over the merger while if bank B survives the FDIC has authority over the merger application. Such a merger, of course, must be consistent with state branching laws, since A or B will operate as a branch of the survivor.

Payment can once again be in the form of cash, stock or other securities. Any adjustments to the balance sheet of the target bank necessitated by the merger will be reflected in the balance sheet of the surviving (merged) institution.

For a variety of reasons, such as avoiding violations of state branching laws, the holding company may want both institutions to survive and still avoid the applications being under the authority of the Board. To accomplish this, the holding company can construct a triangular merger. In this case, the holding company obtains a charter for a new bank. This chartered but non-existent bank is then merged into the acquired institution. The surviving bank should be, all other things being equal, the bank which has its merger applications considered by the desirable agency. In our example, if the holding company wanted the FDIC to rule, it would make bank B the surviving bank. If the holding company wanted the OCC to have authority, it would have chartered its "phantom" bank as a national bank. The benefits from these triangular mergers must, of course, be weighed against the costs of obtaining a new charter.

The regulatory benefits of the alternative merger structures discussed above depend on two factors: first, that there be some criteria upon which bank regulatory agencies based their merger decisions and second, that the regulatory agencies differ in how they evaluate these criteria. Both these factors hold. In particular, the basic antitrust provisions of the BHC Act and the Bank Merger Act direct regulators to disapprove mergers

> whose effect may be to substantially lessen competition . . . or tend to create a monopoly . . . unless it finds that the transaction's anticompetitive effects are clearly outweighed by its probable effect in meeting the convenience and needs of the community.

Additionally, regulators are cognizant of the capitalization of the merged institution. How much capital and the capital structure itself can play an important role in deciding the permissibility of a bank merger. Further, the regulators do in fact differ in their interpretation of competitive and financial criteria in evaluating a merger. There is at least one instance where a holding company application to acquire a bank has been disapproved by the Board, then restructured the acquisition as a merger between a subsidiary bank and the bank to be acquired, and had the restructured transaction approved by another agency.

Summarizing the law and regulatory attitudes toward market structure issues in bank mergers is difficult because the law is still evolving. Since the Supreme Court decision in the *Philadelphia National Bank* case in 1963 and the subsequent Bank Merger Act and 1966 amendments to the Bank Holding Company Act, each regulatory agency has been developing its own (although unclear) approach to the topic, as have the Justice Department and the courts.

The regulatory approaches all consider the effects on direct competition and the banking product market, although how those concepts are defined is not so clearcut. Until recently, mergers involving two banks in the same service area (horizontal merger) generally were not permitted to take place unless the institutions involved had small market shares. Department of Justice guidelines suggest that in a "moderately concentrated" market a bank with only a 7 percent market share should not be able to acquire another bank unless the latter's market share is less then 7 percent. How the market is defined is obviously of critical importance. And it is here where the regulators begin to differ. Whereas the OCC is most likely to define the geographic market in horizontal competition cases as where the banks are in direct and immediate competition, the Board is most likely to accept the standard geographic area (e.g., county, SMSA) as the basis of assessing competitive effects.

Exactly what defines the banking product and, by extension, its product market is a continual topic of debate. This area was first brought out in the *Philadelphia National Bank* case. In that case, the Supreme Court held that commercial banking itself was a distinct and unique line of commerce. As such, in computing market shares only commercial banks should be considered even though other financial institutions (e.g., thrifts, credit unions) may be in vigorous competition for bank customers. This position was reaffirmed in 1973 in *United States v. Connecticut National Bank*, although the Court did acknowledge that at some future date the presence of nonbank competition might have important implications.

Although no formal court decision has been made, regulatory agencies do consider the presence of nonbank competitors. The merger application procedures adopted by bank regulators typically call for the merging banks to submit information concerning the effect of the transaction on market structure and competition. As such, they can be expected to use a fairly broad definition of the relevant product market. In their guidelines, the Board has let it be known, at least to a point, that it will not object to broadly defined markets. The Board has explicitly stated that it may "consider the degree of competition from thrift institutions" in deciding on a merger application. The OCC has

even gone beyond this, deciding in at least one instance to include in the product market both savings and loan associations and credit unions. Overall, the OCC and FDIC have seemed particularly willing to consider competition from nonbank services when judging bank mergers and acquisitions.

The Board, unlike its regulatory counterparts, has also explored other market structure considerations that increase the probability of merger denial, particualrly in cases where a large bank was the target. One such example is the potential competition doctrine, which the Board was fond of (until two judicial setbacks) in the early 1980s. This doctrine actually has two parts. The first argues that an organization seeking to enter a market exerts a competitive influence that is lost or reduced if that organization acquires a large institution. The second part, sometimes known as the probably future competition doctrine, asserts that while an outside holding company exerts no influence, it might in the future via *de novo* entry, and this possibility would be eliminated if a merger were approved. The lack of evidence supporting these theories and the courts' unwillingness to give them much credence, has led to their demise.

The Board also showed a tendency to equate big and bad by habitually discussing the effects of mergers on statewide banking structures. Once again, however, this has found little favor in the courts. In sum, then, it would appear that the Board is more conservative in its interpretation of market structure criteria than its regulatory counterparts.

Capital Regulation

Capital regulation is another area in which differences have arisen in agency standards. These differences may prove important in the evaluation of the appropriate regulatory agency to approach for merger and acquisition approval. The entire area of standards of capital regulation has been subject to substantial change within and among the three agencies over the last decade.

Before 1981, no uniform policy on capital adequacy existed among the three supervisory agencies. Rather, each used its own subjective evaluation of capital to evaluate adequacy. However, in December of 1981, the three agencies announced common standards to determine minimum primary capital ratios for banking organizations. Thier decision was to divide the industry into three types of institutions. The largest banking organizations, numbering 17 and termed multinationals, did not have objective numerical capital standards, but were evaluated individually. The remaining two groups were evaluated based upon a three tier system. Regional banks were asked to maintain

capitalization above 6.5 percent in terms of capital asset ratios in order to be defined as adequately capitalized. Those institutions between 5½ and 6½ percent were viewed as being marginal, and those with less than 5½ were viewed as having undercapitalized balance sheets. Institutions at the community bank level were asked to maintain capital one half of one percent above those of the regional banks. As of the end of 1983, the distinction between multinationals and regionals was eliminated and their capital regulation standardized.

Under the new regulations, the three agencies also instituted a new procedure whereby capital ratios were assessed in terms of two definitions of capital, viz., primary and total. Primary capitalization was the ratio of those capital categories viewed as the first line of defense in the case of solvency problems. It included common stock, perpetual preferred stock, surplus, undivided profits, and capital reserves. In addition, mandatory convertible instruments, reserves for loan losses and minority interests in consolidated subsidiaries are all included in the primary capital classification. Subtracted from the primary capital is the portion of the reserve for loan losses associated with loans that are classified as lost in examination. In addition, intangible assets are reduced from the capital. The secondary capital classification, which, together with primary constitutes total capital, includes limited life preferred stock, plus subordinated notes and debentures.

In spite of the perceived similarity in the regulation of capital by the three agencies, differences have developed in the actual procedures used in the evaluation process employed. The Federal Reserve views the capital guidelines only as guidelines, rather than strict regulations; therefore, they require a more strict adherence to the definitions and evaluation listed above. The Comptroller of the Currency views the capital standards as guidelines as well.

In addition to the relative seriousness with which these regulations are imposed, differences also exist in the actual computation of capital and assets. The Federal Reserve appears to be more lenient in its definition of capital, being much more willing to consider equity commitment notes as primary capital than either the FDIC or the Comptroller of the Currency. On the other hand, the Comptroller of the Currency and the Federal Reserve are more willing to consider intangible assets as part of capital, through their favorable consideration of mortgage service right and favorable leases in the primary capital category. The FDIC, on the other hand, is only willing to recognize their presence on the balance sheet, giving some weight but not a clear classification to these categories.

The result of the new capital standard and its interpreta-

tion is that individual firms considering a merger must give careful consideration to their potential new consolidated balance sheet and the current enforcement pattern of the three agencies, as they relate to capital adequacy. For some institutions, where intangible assets are an important part of the balance sheet, the FDIC becomes a less favorite regulator. Therefore, tne surviving institution is more likely to be a national bank or a member of the Federal Reserve. At the same time, the Federal Reserve was also responsible for holding company capitalization, so their opinion and control is an unavoidable part of the holding company's acquisition. This latter recognition has led to an awkward balance, whereby, even if one were to avoid the Federal Reserve through the use of a national charter, one could not easily avoid the Federal Reserves' determination of adequate capital at the holding company level where it has a complete regulatory monopoly.

The discussion of capital at this point would be finished, were it not for a new proposal currently being discussed at the three regulatory bodies. In early 1986, the three agencies proposed new standards for capital, referred to as risk-based capital measures. The basic design of this approach is to determine capital adequacy based on the riskiness and size of various asset categories in the portfolio and off-balance sheet activity. All three agencies have endorsed some form of risk-based capital. The proposal, which emanated from the Federal Reserve Bank of New York, is merely a first attempt at arriving at some weighing of various components, bank activity and portfolio structure in the determination of appropriate capital standards. The imposition of any such process will, once again, substantially shift the evaluation of an individual bank as it relates to capital adequacy regulatory adherence. To the extent that the risk-based capital procedure currently proposed is adopted fully, some institutions that were previously viewed as having adequate capital will be classified as being in a position of insufficient capital. The reverse is also true. Therefore, the impact of risk-based capital regulation and the various methods of enforcement will prove to be an important implication for further merger analysis.

While the entire issue is at a relatively early stage of implementation, it is important to note that the three regulators have taken different positions as to the usefulness of the risk-based capital approach. For example, the Federal Reserve has already indicated that they would like to use risk-based capital in addition to simple capital asset ratios and as guidelines in capital regulation. Ultimate acceptability of capital will be dependent upon evaluation of loan quality and overall performance of the institution. On the other hand, the FDIC has indicated that the proposal is a precursor to imposing the risk-based

capital standards as an additional regulation rather than a guideline for evaluation. At the other extreme, the Comptroller of the Currency has offered the risk-based capital proposal in lieu of capital asset ratio regulation. Specifically, it is their intent to eliminate simple capital asset ratio regulation in favor of a risk-based approach.

All of the other considerations heretofore mentioned, such as the evaluation of various categories in the explicit nature of considering primary and secondary capital, still are relevant in a risk-based capital world. However, to the extent that the risk-based capital affects an institution differently than simple capitalization, the regulatory posture toward the implementation of risk-based capital regulation will be a primary determinant in deciding the appropriate or most favorable regulator for a merger.

It is, therefore, apparent that capital regulation is an important consideration that goes into a choice of regulators for the new institution. As is indicated above, the merged entity, through the holding company, may select a regulator by selecting the charter which is most appropriate for the new institution. As bank management reviews the initial consolidated balance sheet of the post-merger institution, it is essential that the differential capital regulation of the regulators be considered. The holding company should chose the regulatory body that views the new entity most favorably from the point of view of regulatory constraints and guidelines.

A variety of state regulations regarding corporate acquisitions of bank stock may also affect the way a transaction is structured. For example, several states (e.g., Maryland, Arizona, California) require state approval for acquisition of a state bank. If this is expected to create difficulties, a phantom bank that is a national bank can be used in the merger so as to avoid a state regulatory agency. Numerous states do not permit acquisitions of more than 25% of a single bank. To get around this it may be possible in some instances, depending on how corporate control is measured, to set up a reverse merger and circumvent ownership restrictions.

III. Federal Regulation of Bank Mergers

The beginnings of the geographic limitations on commercial banking can be traced to the 1927 McFadden Act and the Douglas Amendment of the Bank Holding Act of 1956. Together, these two acts have effectively erected barriers to entry in interstate banking by prohibiting banks from operating branches outside their home state (McFadden Act) and by forbidding banks from purchasing banks outside their home state, unless the laws of this acquired bank's state expressly permit such an acquisition (Douglas Amendment). The types of financial services that commercial banks may provide to their customers is restricted by the Glass-Steagall Act of 1933, which separates commercial banking and the securities business. Thus, the McFadden Act, the Douglas Amendment to the Bank Holding Company Act of 1956 and the Glass-Steagall Act establish geographic and product barriers to entry in the commercial banking industry.

Several other legal and regulatory developments have had important consequences for the scope of commercial banking operations. In 1963, the Supreme Court prevented the Philadelphia National Bank from merging with another Philadelphia bank, The Girard Trust Corn Exchange Bank. In a decision that tends to restrict the merger plans of many banks, the Supreme Court contended that the banks were direct competitors. The competitive nature of the relationship between acquiring and acquired bank was employed to disallow the merger on antitrust grounds. Prior to this antitrust interpretation of bank merger activity, the extensive regulatory environment of the banking industry was cited as justification for exemption of banks from the provisions of the antitrust laws. The Supreme Court's imposition of the antitrust considerations in bank merger activity supplies an additional barrier to entry for banks which may be considered to be competitors. As shown in Table 1 this decision slowed the growing level of concentration in the banking industry that had resulted from the large number of mergers that had taken place in the 1950s.

In the Congress, legislation was passed in 1960 and 1966 that permits bank mergers that provide benefits to the community which outweigh the potential anticompetitive aspects of a merger. Although the Supreme Court's Philadelphia National Bank decision established the precedent of considering antitrust issues in a merger, the Bank Merger Act provides the Justice Department with a basis for

developing compromise guidelines to be employed in evaluating bank merger proposals. In 1970, Congress passed legislation which vests additional power in the Federal Reserve Board to monitor the activities of banks. Prior to 1970, one-bank holding companies had been exempt from the provisions of the Bank Holding Company Act of 1956. The 1956 Act gave the Federal Reserve Board the authority to determine the permissible activities (products) of multibank holding companies. To avoid the restrictions imposed on multibank holding companies by the 1956 Act, many banks maintain a one-bank holding company structure which allowed expansion of its nonbanking activities. The 1970 amendments to the Bank Holding Company Act eliminated this desirable company structure by restricting one-bank holding companies to adhere to all provisions of the Bank Holding Company Act. Although this new law enabled the Federal Reserve Board to maintain closer control over the activities of commercial banks, the elimination of incentives to maintain a one-bank holding company structure prompted several banks to expand by acquiring additional banks. On balance, federal legislation of the 1960s and 1970s tended to reduce the prohibitions on merger activity in the banking industry.

Recently, Congress has passed several pieces of legislation which tend to cloud the product market served by the banking industry. The Depository Institutions Deregulation and Monetary Control Act of 1980 expanded the permissible activities of thrift institutions and provided for nationwide authorization of NOW accounts. In banking product markets, this legislation has added thrift institutions as competitors in traditional banking activities. The Garn-St. Germain Depository Institutions Act of 1982 provides for financial assistance to aid troubled financial institutions. The emergency provisions of the Act permit an out-of-state organization to acquire troubled banks under certain circumstances.[1] As a result of this legislation California's Bank of America acquired Seafirst of Washington. This acquisition occurred after significant losses were incurred in Seafirst of Washington's energy and foreign lending activities.[2] Although the Act provided for emergency acquisitions, the Act tightens the types of transactions permissible between a parent bank and its holding affiliates.[3]

[1]The FDIC can aid institutions which are closed, insolvent, in default or so endangered; or where severe financial conditions exist that threaten the stability of the financial system; or in order to reduce the FDIC's exposure to loss. The FDIC can authorize the merger of failing thrifts with another federally insured institution according to the following priorities: (i) like, in-state institutions; (ii) like, out-of-state institutions; (iii) different, in-state institutions; (iv) different, out-of-state institutions; (v) among out-of-state bidders, priority is to be given to adjacent state institutions.

[2]See, May 25, 1983 Bank America Corporation Seafirst Corporation—Prospectus/Proxy Statement, pp. 6-7.

[3]Section 23A of the Banking Affiliates Act of 1982 is designed to prevent the misuse of a bank's resources resulting from financial transactions between the bank and companies with which it is affiliated. Potential abuses have been regulated by placing quantitative limitations on transactions with affiliates, as well as between bank subsidiaries and

Interstate Merger Regulation

The issue of interstate mergers to aid troubled institutions across state lines is but one of the growing number of areas in which the previously sacred state boundary has been crossed in the new wave of mergers. The once clear limitation of geographic expansion, made official in the Douglas Amendment to the McFadden Act, as passed in the Bank Holding Company Act of 1956, has undergone significant erosion over the last decade. This development, its causes, and its prospects to further changes in the future, add new dimensions and opportunities to the bank merger market.

The Douglas Amendment prohibited the expansion of a bank holding company across state lines without the explicit legal permissibility being granted by the entered state. It, in effect, allowed state legislatures to determine the extent of "foreign" bank activity in its state and under what terms. In 1956 this was seen as a reassertion of state rights, and the *de facto* closing of state borders to out-of-state competition. Those wishing access to the in-state market were limited to obtaining access through "grandfathered" institutions, non-bank affiliates or the recently enacted troubled-firm option alluded to above.

However, 1975 was the beginning of a change in this perception of exclusivity of state banking. Then Maine enacted the first state law permitting general entry of out-of-state banking units. The result was a period of rapid acquisition of Maine holding companies by banking firms in New York, Rhode Island, and Connecticut.

Interestingly, additional states did not follow Maine's lead until seven years later. At that point both New York and Massachusetts passed interstate banking laws. The latter, however, was considerably different than the former. While New York authorized out-of-state bank activity within its borders without reciprocity, Massachusetts established a regional statute, providing access on a limited basis based upon home state of the holding company.

Litigation followed quickly, with the future of regional pacts subject to considerable debate. Additionally, congressional action on various "trigger" proposals and interstate banking bills had been slowed by the anticipation of the Supreme Court's decision in the *Northeast Bankcorp Inc., et al, Petitioners, v. Board of Governors of the Federal Reserve System, et al.* case (hereafter, the Northeast Bancorp case).

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other affiliates, and by requiring that bank loans and extensions of credit to affiliates be fully secured. The quantitative limitations state that any covered transactions between a bank and its affiliate cannot exceed 10% of the bank's capital stock and surplus; the rules also limited covered transactions with all affiliates combined to 20% of the bank's capital stock and surplus. The collateral requirement dictates that any bank loan or extension of credit to an affiliate be secured by stocks, bonds, debentures, or other obligations having a market value equal to at least 100% or more of the amount of the loan or a higher percentage depending on the type of collateral that is used.

On June 10, 1985, the Supreme Court of the United States delivered its opinion on the Northeast Bancorp case. In this case, the Supreme Court states:

> We hold that the state statutes here in question comply with the Douglas Amendment and that they do not violate the Commerce Clause, the Compact Clause, or the Equal Protection Clause of the United States Constitution (Northeast Bancorp Inc., et al, Petitioners v. Board of Governors of the Federal Reserve System).

The 8-0 court ruling upholding regional banking implied that state geographic barriers to entry will be replaced by regional barriers to entry. While these regional barriers to entry provide a reduction in the constraints on merger activity, they unquestionably added fuel to the relatively slow interstate banking trend before it.

To date, as Table 2 indicates, twenty-eight states have enacted such regional banking legislation. For some, the results have been immediate, with substantial cross boundary acquisitions and regionalization. However, much more is in the offing, as many state laws will not be effective until 1987 or 1988. A recent Philadelphia Federal Reserve Bank study indicates that nearly 200 regional acquisitions have either been approved or are pending as a result of the flurry of legislation.

TABLE 2

Interstate Banking Legislation, by State
January 1, 1987

State	Effective date	Area covered by interstate legislation
Alabama	July 1, 1987	Reciprocal, 12 states (AR, FL, GA, KY, LA, MD, MS, NC, SC, TN, VA, WV) and DC
Alaska	Currently	National, no reciprocity
Arizona	Currently	National, no reciprocity
California	July 1, 1987	Reciprocal, 11 states (AK, AZ, CO, HI, ID, NV, NM, OR, TX, UT, WA)
	January 1, 1991	National, reciprocal
Connecticut	Currently	Reciprocal, 5 states (MA, ME, NH, RI, VT)
District of Columbia	Currently	Reciprocal, 11 states (AL, FL, GA, LA, MD, MS, NC, SC, TN, VA, WV)
Florida	Currently	Reciprocal, 11 states (AL, AR, GA, LA, MD, MS, NC, SC, TN, VA, WV) and DC

TABLE 2 *(Continued)*

Interstate Banking Legislation, by State
January 1, 1987

State	Effective date	Area covered by interstate legislation
Georgia	Currently	Reciprocal, 9 states (AL, FL, KY, LA, MS, NC, SC, TN, VA)
Idaho	Currently	Reciprocal, 6 states (MT, NV, OR, UT, WA, WY)
Illinois	Currently	Reciprocal, 6 states (IA, IN, KY, MI, MO, WI)
Indiana	Currently	Reciprocal, 4 states (IL, KY, MI, OH)
Kentucky	Currently	National, reciprocal
Louisiana	July 1, 1987	Reciprocal, 14 states (AL, AR, FL, GA, KY, MD, MS, NC, OK, SC, TN, TX, VA, WV) and DC
	January 1, 1989	National, reciprocal
Maine	Currently	National, no reciprocity
Maryland	Currently	Reciprocal, 3 states (DE, VA, WV) and DC
	July 1, 1987	Reciprocal, 14 states (AL, AR, DE, FL, GA, KY, LA, MS, NC, PA, SC, TN, VA, WV) and DC
Massachusetts	Currently	Reciprocal, 5 states (CT, ME, NH, RI, VT)
Michigan	Currently	Reciprocal, 5 states (IL, IN, MN, OH, WI)
	October 10, 1988	National, reciprocal
Minnesota	Currently	Reciprocal, 4 states (IA, ND, SD, WI)
Mississippi	July 1, 1988	Reciprocal, 4 states (AL, AR, LA, TN)
	July 1, 1990	Reciprocal, 13 states (AL, AR, FL, GA, KY, LA, MO, NC, SC, TN, TX, VA, WV)
Missouri	Currently	Reciprocal, 8 states (AR, IA, IL, KS, KY, NE, OK, TN)
Nevada	Currently	Reciprocal, 11 states (AK, AZ, CO, HI, ID, MT, NM, OR, UT, WA, WY)
	January 1, 1989	National, no reciprocity

– Continued –

TABLE 2 *(Continued)*

Interstate Banking Legislation, by State
January 1, 1987

State	Effective date	Area covered by interstate legislation
New Jersey	Currently	Reciprocal, 13 states (DE, IL, IN, KY, MD, MI, MO, OH, PA, VA, TN, WI, WV) and DC
	Trigger of 13 states with reciprocity for NJ. 4 of 13 must be among 10 states with largest bank deposits.	National, reciprocal
New York	Currently	National, reciprocal
North Carolina	Currently	Reciprocal, 12 states (AL, AR, FL, GA, KY, LA, MD, MS, SC, TN, VA, WV) and DC
Ohio	Currently	Reciprocal, 13 states (DE, IL, IN, KY, MD, MI, MO, NJ, PA, TN, VA, WV, WI) and DC
	October 17, 1988	National, reciprocal
Oklahoma	July 1, 1987	National. After initial entry. BHC must be from state offering reciprocity or wait 4 years to expand.
Oregon	Currently	8 states, no reciprocity (AK, AZ, CA, HI, ID, NV, UT, WA)
Pennsylvania	Currently	Reciprocal, 7 states (DE, KY, MD, NJ, OH, VA, WV) and DC
	March 4, 1990	National, reciprocal
Rhode Island	Currently	Reciprocal, 5 states (CT, MA, ME, NH, VT)
	July 1, 1988	National, reciprocal
South Carolina	Currently	Reciprocal, 12 states (AL, AR, FL, GA, KY, LA, MD, MS, NC, TN, VA, WV) and DC
Tennessee	Currently	Reciprocal, 13 states (AL, AR, FL, GA, IN, KY, LA, MO, MS, NC, SC, VA, WV)
Texas	Currently	National, no reciprocity
Utah	Currently	Reciprocal, 11 states (AK, AZ, CO, HI, ID, MT, NM, NV, OR, WA, WY)
	December 31, 1987	National, no reciprocity

TABLE 2 *(Continued)*

Interstate Banking Legislation, by State
January 1, 1987

State	Effective date	Area covered by interstate legislation
Virginia	Currently	Reciprocal, 12 states (AL, AR, FL, GA, KY, LA, MD, MS, NC, SC, TN, WV) and DC
Washington	July 1, 1987	National, reciprocal
West Virginia	January 1, 1988	National, reciprocal
Wisconsin.....	Currently	Reciprocal, 8 states (IA, IL, IN, KY, MI, MN, MO, OH)

1. Several states prohibit acquisition of banks in operation for less than a specified number of years. Some allow out-of-state firms to acquire problem institutions.
Source: *Federal Reserve Bulletin*, February 1987

This number, however, grossly underestimates the impact of this new legislation. In many states the regional compacts included nationwide trigger dates which will foster further consolidation and merger activity.

In this section, we have traced the evolution of the regulatory environment facing banks contemplating acquisition activity. Although recent developments have tended to reduce product and geographic barriers to entry, significant constraints on merger activity still remain. Regional banking appears to be a change which will occur in the organization of the financial services industry in the near future. With the relaxation of the geographic barriers to entry, we expect an increase in merger activity within banking regions. In the next section, we consider an additional regulatory constraint (the Internal Revenue Code) that has profound effects on the structuring and price paid for the target bank.

IV. Structuring and Tax Aspects of Bank Mergers

Since the tax consequences of a merger transaction have an impact on both the cost of an acquisition and the buyer's ability to convince a bank's owners to sell their shares, it is not surprising that there are clear reasons why one form of acquisition may be preferred over another. In this section, we explore the major considerations in structuring a bank merger under present tax law. We address the question of optimal merger contract structuring from the point of view of the acquiring bank, the selling bank, and the selling bank's shareholders.

Although the tax laws usually treat any sale or transfer of stock as a taxable event, Section 368 of the Internal Revenue Code lists several types of transactions that may be treated as a tax free reorganization. The principal benefit of a nontaxable transaction is that neither the buyer, the seller, nor the selling shareholders are forced to recognize a gain or loss on the exchange of the shares in the merger. Additionally, the acquiring bank obtains a carryover of the basis of the acquired bank's assets, which eliminates the problem of the nondeductible nature of "Goodwill" that may arise in a taxable transaction. In order to qualify as a tax-free reorganization, the transaction must meet the requirements that there be a business purpose for the merger, a continuity of the shareholder's interest, and continuity of the selling bank's business.

The most common type of nontaxable transaction used by the combining firms is the statutory merger of "A-type" reorganization. This type of reorganization is generally preferred to the other available types of nontaxable transactions, due to the large amount of flexibility given to the buyer and seller in determining what forms of consideration to offer to the selling shareholders.[4] Since the regulations for statutory mergers require that only 50% of the consideration paid to shareholders be in the form of voting stock (including common, preferred or convertible preferred stock), the owners of the bank being acquired are given the opportunity to choose between exchanging their shares for the shares of the acquiring bank (a taxable event) or receiving cash for their shares.[5] Since a statutory merger must be approved by the directors of both banks, and the majority of sharehold-

[4]In addition to A-type reorganizations, Section 368 includes "B-type" reorganizations (stock swaps stressing control), "C-type" (substantially all assets for voting common stock), "D-type" (transfer to a controlled corporation), "E-type" (recapitalization), "F-type" (change of form), and "G-type" (insolvency reorganization).

ers of both banks, the ability to offer alternative forms of payment to a large number of shareholders is helpful in obtaining approval of the merger by all of the parties involved. In a statutory merger, the buyer retains the flexibility to develop a merger agreement that limits the amount of each type of consideration to be paid (i.e., 60% stock minimum, 40% cash maximum) and thus ensure that the merger will qualify for tax-free status.

The strong preference by purchasers for exchange of voting stock is due not only to the benefits associated with nontaxable transactions, but to the equity capitalization requirements for banks imposed by federal and state regulatory agencies. Since regulators generally require that a bank maintain equity-to-assets ratios of at least 5%, the exchange of equity in a merger is often necessary to maintain an appropriate level of capitalization for the combined entity. Capitalization requirements account for the frequent use of convertible preferred stock in bank mergers, and may also be a factor in explaining the premiums paid for banks having relatively high capitalization ratios.[6]

A possible disadvantage of a tax-free reorganization is that the buyer must assume all of the assets and liabilities of the seller, including any unknown or contingent liabilities of the seller. To mitigate this unfavorable aspect of a tax-free merger, the acquiring bank can reduce the liability for unknown or contingent liabilities through the use of a subsidiary in a "Type-A" reorganization.[7] By employing either a forward or a reverse triangular merger, a newly-formed subsidiary of the acquiring bank can be used to complete the exchange, thus protecting the parent bank's assets.[8] First Commonwealth Financial Corporation (a bank holding company that owns the National Bank of the Commonwealth) employed the forward triangular technique in its purchase of Deposit Bank in 1984. In that transaction, the plan of reorganization provided for the merger of Deposit into "Interim Deposit Bank," a newly-formed, wholly owned subsidiary of First Commonwealth Financial Corporation. Each shareholder of Deposit exchanged his shares for shares of the parent holding company,

[5]In some cases, a selling shareholder could elect to receive both stock and cash for his shares. Although this type of election could result in taxation of a portion of the gain on shares sold for cash at ordinary income tax rates rather than capital gains rates (Section 306 of the I.R.C.).

[6]Since regulators constrain bank's capitalization ratios, a bank with slack available in its capitalization ratio may provide a bank which has undertaken a program of acquisitions with valuable flexibility in other acquisitions. Thus, the slack in capitalization ratio will be priced out in the market for bank acquisitions.

[7]Establishing a subsidiary to acquire another bank (or corporation) is not unique to nontaxable mergers. In Bank of America's acquisition of Seafirst of Washington a forward triangular merger was adopted to insulate the owners of Bank of America from unknown or contingent liabilities of the acquired bank.

[8]The use of a subsidiary in an "A-type" reorganization is described in sections 368 (a) (d) (forward triangular mergers) and 368 (a) (e) (reverse triangular mergers) of the I.R.C.

FCFC. The reverse triangular merger was employed in the merger of Fulton Financial Corporation and The Farmer's Trust Company in 1984. Fulton created "Farmer's Interim Bank" which was merged into Farmer's Trust, terminating the existence of Farmer's Interim Bank. Each share of Farmer's Trust common stock was then converted into shares of Fulton Financial Corporation common stock. Farmer's Trust survived the merger as a wholly-owned subsidiary of Fulton Financial Corporation.

Several other considerations are consistent with a preference for a nontaxable transaction over a taxable transaction. Although an acquiring bank may obtain higher depreciation deductions on the stepped-up basis of purchased assets in a taxable transaction, the present value of the increased deduction may not exceed the tax on the recapture of depreciation and ITC (investment tax credit) incurred by the selling bank at the time of the acquisition. These tax code regulations suggest that a taxable merger of a bank with book value of depreciable property below fair market value of depreciable property may occur at a higher purchase price compared to an identical nontaxable acquisition. In addition, any excess of acquisition price above the market value of identifiable net assets is defined as "Goodwill." Under the present tax code, amortization of goodwill is not deductible as an expense in the computation of tax liability. The existence of nondeductible intangible assets for tax purposes will favor constructing the merger as a nontaxable transaction. Recently, acquiring banks have sought to allocate a portion of the purchase price in excess of the book value of acquired deposits to an intangible asset described as "core deposit premium." This identifiable intangible asset would be allocated over its useful life in identical fashion to depreciation on a fixed asset. To date, three major cases have considered the practice of assigning a value of the low cost of funds from deposits. In *Southern Bancorporation, Inc. v. U.S.*, the Fourth Circuit Court reversed the U.S. District Court of South Carolina's ruling favoring the allocation of premium to the loan portfolio of the acquired bank. In their ruling, the Fourth Circuit found that the taxpayer did not perform the assessment of the loans' value prior to the bank acquisition. The ex post evaluation of the loans' value was not considered sufficient evidence to support the claim that an intangible asset existed at the date of acquisition.[9] The *Midatlantic National Bank/Merchants v. Commissioner* allowed the recognition and amortization of the intangible asset arising from the costs associated with soliciting the depositors of a failed bank. The Internal Revenue Service specified that the intangible asset should be considered only for soliciting customers of failed banks

[9]See July 1985 Coopers & Lybrand Banking Newsletter.

and not allocation of purchase price for an acquired bank. Finally, the Tax Court disallowed a depreciation deduction for deposit premium in *Banc One Corporation v. Commissioner*. The Court found that the taxpayer had not provided sufficient evidence of the existence of under-valued loans or the limited useful life of the core deposit premium to justify the depreciation deduction claimed by the taxpayer. These cases point out the need to specify in advance of the purchase of a bank: (1) the intangible asset is separate and distinct from goodwill, and (2) the intangible asset has a limited useful life. In sum, the restriction of allocation of excess of purchase price over book value of the net assets received in a purchase for tax purposes may be reduced by a careful specification of the terms of the merger agreement. To the extent that the Internal Revenue Service allows amortization of core deposit premium in the future, structuring the acquisition as a taxable transaction will be a more attractive alternative in the future.

Financial Reporting Considerations: Pooling and Purchase Accounting

The structure of a business combination may have dramatic effects on the methods of reporting income in the financial reports of the combined group. Two methods of reporting a business combination are considered generally accepted by the accounting profession. They are the pooling of interests method and the purchase method. In APB Opinion No. 16, the requirements for treating a business combination as a pooling of interests are specified. All other transactions that do not meet all of the stringent requirements presented in this Opinion are accounted for by the purchase method.

The pooling of interest method is considered appropriate only in transactions that meet the following twelve requirements:

(1) The combining companies are autonomous and have not been a subsidiary or division of another company within two years.
(2) The combining companies are independent of each other.
(3) The transaction must be effected in a single transaction or be completed in one year.
(4) One corporation must offer and issue only common stock in exchange for substantially all (90 percent or more) of the outstanding stock at the date the plan is consummated.
(5) None of the combining companies change the equity interest of the voting common stock in contemplation of effecting the combination either within two years before the plan combination is initiated or between the dates the combination is initiated or consummated.

(6) Each of the combining companies reacquires shares of voting common stock only for purposes other than business combinations.

(7) The ratio of the interest of an individual common stockholder to those of other common stockholders in a combining company remains the same as a result of the exchange of stock to effect the combination.

(8) The voting rights to which the common stock ownership interests in the resulting combined corporation are entitled are exercisable by the stockholders; the stockholders are neither deprived of nor restricted in exercising those rights for a period.

(9) The combination is resolved at the date the plan is consummated and no provisions of the plan relating to the issue of securities or other consideration are pending.

(10) The combined corporation does not agree directly or indirectly to retire or reacquire all or part of the common stock issued to effect the combination.

(11) The combined corporation does not enter into other financial arrangements for the benefit of the former stockholders of a combining company, such as a guaranty of loans secured by stock issued in the combination, which in effect negates the exchange of equity securities.

(12) The combined corporation does not intend or plan to dispose of a significant part of the assets of the combining companies within two years. (ABC Opinion No. 16, paragraphs 45-49)

All other transactions are treated as a purchase for reporting purposes.

The effect on net income from treating a transaction as a pooling of interests is ambiguous. If the purchase price of the acquired bank exceeds the fair market value of the identified assets and the fair market value of the identifiable assets exceeds the book value of the identifiable assets, pooling of interests accounting will provide greater net income than purchase accounting. However, purchase accounting may produce a greater net income than pooling of interests when the fair market values are below the book values of the acquired firms' net assets. In sum, the transaction must be structured to meet the pooling of interests criteria (above) provided the participants prefer the pooling of interests effect on reported net income. If the transaction does not meet all twelve requirements, the purchase accounting method's effect on net income will result.

V. Bank Merger Premiums: An Empirical Analysis

How much a target bank is worth (or how much, relative to this, a bidding bank is willing to pay) is the critical issue in bank merger negotiations and whether the merger is actually consummated. Since most banks are not publicly traded, participants in the bank merger arena cannot rely on stock market prices to reveal the market worth of a potential target. The result is a more difficult valuation process. While no two banks are identical, a pricing model that "explains" bank merger premiums in terms of publicly available financial and product market characteristics of the target, would be a very valuable tool.

Such a model would allow both bidding and target banks to have a general idea of the purchase price of acquired banks with characteristics similar to that of the target bank. This price would be a useful negotiating benchmark from which the premium could be adjusted (up or down) according to the idiosyncratic target bank characteristics not incorporated into the pricing model. Further, potential target banks interested in increasing their value in a merger would be able to readily assess the type of financial activities and balance sheet adjustments needed to achieve this end. Finally, and more generally, such a pricing model would allow bank merger participants and other interested parties to better understand and quantify the factors that determine merger premiums. With this in mind, we turn to our estimation of a bank merger premium model.

The bank merger sample consists of 264 acquired banks over the seven quarter period including all of 1984 and the first three quarters of 1985. From this, we developed a subsample of 149 matched acquired and acquiror banks so that we can compare the financial and product market characteristics of (successful) bidding and target banks. For all these banks, annual balance sheets and income statements were obtained for 1980, 1981 and 1982 from the annual call reports filed by banks with the Federal Deposit Insurance Corporation. Bank merger premiums, expressed as purchase price to book ratios, were obtained from the *Bank Expansion Quarterly* published by Golembe Associates. Regulations on branch banking, multibank holding companies and electronic banking were also obtained from this publication. The average premium for the 264 bank merger sample is 1.417.

Table 3 presents descriptive statistics for the 149 matched

acquiring and acquired firms. These statistics are derived from 1982 annual reports and are divided into three categories: balance sheet characteristics, income statement characteristics and market characteristics. We consider each in turn. The balance sheet figures show that acquiring banks are, on average, almost seven times the size of the bank they purchase. The average acquiring firm is almost $1 billion while the average acquired firm is only $150 million. Since average asset size can be misleading because of a few large banks, we also report median firm data. The median acquiror (i.e., the firm at the 50th percentile) is nine times the size of the purchased banks. Further, acquirors averaged over 20 branch establishments to less than 5 for acquired banks.

The balance sheet figures also indicate acquiror and acquired banks differ in their balance sheet risk. Acquiror banks have a 1) lower percentage of U.S. Treasury securities; 2) lower percentage of total investments; and 3) higher percentage of net loans. Of the investment securities acquiror banks do own, a far lower percentage of them is in riskless U.S. Treasury securities. This implies that not only are acquiror banks more loan intensive than acquired banks, but when the former do purchase securities, they are likely to be riskier than those purchased by acquired banks.

That loan loss reserves and write-offs of loans per dollar loan are higher for acquiror banks implies that when loans are made, the acquiror bank is willing to accept more credit risk. Further, that acquiror banks purchase riskier securities is also reflected in the weighted average maturity of U.S. Treasury investments. Longer maturity bonds, all else being equal, are subject to larger price fluctuation than shorter maturity bonds when interest rates change. The average U.S. Treasury security owned by the average acquiror had a maturity of 3 years compared to only 2.55 years for an acquired bank. The balance sheet data clearly indicate acquiror banks are more (risky) loan intensive and, even when acquiror and acquired banks purchase securities, the former is more willing to accept both credit and interest rate risk than the latter. In sum, the asset portfolio of acquiror banks is more risky than that of acquired banks.

The risk difference is also reflected elsewhere on the balance sheet. Specifically, the debt/equity ratio of acquiror banks implies that almost $15 in assets is funded with $1 of equity; for acquired banks less than $13 of assets is funded with every dollar of equity. The increased leverage of acquiror banks is further evidence of their increased risk tolerance, particularly since they are funding a riskier portfolio with less equity.

Acquiror banks appear riskier, both in terms of portfolio

composition and leverage, than their acquired bank counterparts. This should be reflected on the bottom line, when bank shareholders should be compensated for this additional risk by receiving a higher return on equity. Average return on equity is significantly higher for acquiror than for acquired banks.

As a final measure of comparison, we examine the concentration of the market in which acquiring and acquired banks operate. The average Herfindahl index suggests that acquired banks operate in slightly more concentrated markets. Their markets are likely smaller than the current market of the acquiror and represent the opportunity to expand market presence.

In sum, acquiring banks are 1) larger, 2) riskier in both portfolio composition and leverage, and 3) offer shareholders higher returns than the firms they acquire. The implication is that bidding firms seek more conservative targets, presumably to increase their leverage and risk and provide additional returns to their bidder's shareholders.

Given this, we estimate a regression equation where the dependent variable is the merger premium paid for a bank, defined as the purchase price to book ratio. The regression equation includes 14 explanatory variables designed to capture an acquired bank's balance sheet and income statement, its regulatory and market environment and the structuring of the merger.

The ratio of Treasury investments to total assets, denoted TREAS, is expected to have a negative effect on bank merger premiums. That is, the higher this ratio, the lower the premium paid. These assets, because of their riskless nature, have lower (risk-adjusted) returns than alternative investments and hence result in lower bank values. The ratio of net loans to total assets, denoted LNTOAST, has an ambiguous effect on merger premiums. Since loans tend to yield higher risk-adjusted returns, these assets should command a premium in a merger. On the other hand, loans are generally nonmarketable so that, to the extent a purchasing bank desires to redirect the target bank's lending effort or restructure its portfolio, a high loan to asset ratio may decrease the premium paid.

The ability of the acquired bank to meet loan losses and the quality of its loan portfolio is reflected in two variables: the ratio of provision for loan losses to net loans, denoted PROV, and the ratio of loan loss charges to net loans, denoted CHARGOFF. We expect high levels of PROV to have a positive effect on merger premiums since they provide a ready source of protection from loan losses. We expect CHARGOFF to have a negative coefficient since high loan writeoffs are an indication of a weak loan portfolio.

Table 3

Summary Statistics for 149 Bank
Matched Acquiror/Acquired Sample, 1982*

Variable	Summary Statistic	Acquiror	Acquired	Z-statistic
No. of Domestic Branches	Mean	20.121	4.658	9.33
	Median	10.000	2.000	(.000)
	Standard Deviation	29.660	11.691	
Total Investment Securities	Mean	178,907	28,810	9.44
	Median	101,616	0	(.000)
	Standard Deviation	215,823	72,703	
Total U.S.Treasury Securities	Mean	86,891	20,857	9.52
	Median	45,634	9,822	(.000)
	Standard Deviation	118,635	37,447	
Net Loans	Mean	447,209	63,486	10.09
	Median	208,472	25,067	(.000)
	Standard Deviation	611,562	134,209	
Total Assets	Mean	915,723	133,367	10.21
	Median	480,193	52,521	(.000)
	Standard Deviation	1,245,980	298,598	
Equity Capital	Mean	55,749	9,275	9.72
	Median	28,536	4,471	(.000)
	Standard Deviation	63,467	16,937	

Net Income	Mean	7,496	1,167	9.47
	Median	3,823	501	(.000)
	Standard Deviation	9,893	2,419	
Debt/Equity	Mean	13.997	11.667	6.09
	Median	13.757	11.541	(.000)
	Standard Deviation	3.332	3.225	
Weighted Average Maturity U.S. Treasury Investments	Mean	3.068	2.553	2.08
	Median	2.395	2.230	(.005)
	Standard Deviation	2.187	1.444	
Ratio of Reserve for Loan Losses to Total Loans	Mean	.012	.010	4.06
	Median	.011	.009	(.000)
	Standard Deviation	.004	.009	
Ratio of Loan Write-offs to Total Loans	Mean	.012	.010	4.06
	Median	.011	.009	(.000)
	Standard Deviation	.004	.007	
Return of Equity	Mean	.123	.112	2.43
	Median	.138	.126	(.014)
	Standard Deviation	.117	.075	
Herfindahl Index	Mean	.232	.254	1.58
	Median	.178	.208	(.114)
	Standard Deviation	.167	.171	

*Sample size is 149 acquiror and 149 acquired banks. Z-statistic is based on Wilcoxon Matched-Pair Signed-Ranks Test. Significance level in parentheses below test statistic.

An acquiring firm will be willing to pay a higher premium for a well managed, profitable institution. Assuming poorly managed firms exhibit poor performance, the return on equity, which is a summary index of performance, is included in the analysis. The coefficient on the return on equity variable, denoted ROEQ, is expected to be positive. We include a second measure of managerial efficiency, the deviation of the acquired bank's capital level from the level of capital adequacy required by regulators. This variable, denoted CAPDEV, is measured as the bank's capital to asset ratio less the 6% ratio required by regulators. Firms with excess capital are considered to not be using their capital efficiently. This inefficiency decreases the value of the bank so that we expect increases in CAPDEV to lower the merger premium.

The regulatory operating environment of the bank is captured by three variables. The variable UNIT is equal to one if the acquired bank is in a unit banking state and zero otherwise. Since these states restrict competition, the ability to operate banks in these states is, all other things being equal, more valuable. We expect merger premiums to be higher in unit banking states. The variable MULTI describes state law with respect to multibank holding companies and takes a value of one if the bank is located in a state that allows multibank holding companies, and is zero otherwise. The effect of permitting multibank holding companies on merger premiums is ambiguous. The presence of multibank holding companies might increase bank value by discouraging entrants. Further, the presence of multibank holding companies may increase competition among potential bidders and raise merger premiums. Alternatively, the result could be an increase in the extent of potential competition and a decrease in entry barriers resulting in a lower premium value. The variable ELECT equals one if the state permits statewide electronic banking, and is zero otherwise. This variable also captures the competitive thrust of state regulation. Permitting statewide electronic banking suggests a procompetitive environment and a lowering of entry barriers. This will serve to decrease bank value, suggesting a negative coefficient on the variable ELECT.

The bank's market share, denoted MS, and the Herfindahl index, denoted HERF, are included to capture the bank's market environment. Firms with high market share tend to be more profitable and better positioned than their smaller competitors. We expect bank merger premiums to increase with increases in market share. The Herfindahl index measures how concentrated is a banking market. To the extent market concentration leads to monopoly profits (and there is evidence they do not), bidding firms should pay a premium for banks

in these markets.

Two variables have been included to assess the nature of the method of acquisition, PURCH and COMB. PURCH is defined as equal to one if the merger was a cash purchase and is zero otherwise. COMB is defined as equal to one if the merger was completed using a combination of cash and stock as the medium of exchange. In general, the expected signs of these two variables are indeterminant. There are at least two conflicting effects (regulatory and tax) that suggest alternative interpretations of these variables. In a bank merger, the acquired bank may be owned by a relatively small number of shareholders. Given SEC restrictions imposed upon restricted stock and controlling shareholder sales, exchanges of stock place a selling shareholder in an undiversified position. Since investors prefer to be fully diversified, selling shareholders will be willing to accept a lower purchase price, all else being equal, to obtain the easily diversifiable cash distribution. The second major effect is a tax consideration. In general, a purchase or combination of equity and cash will result in a taxable event. To the extent that the selling banker's basis in the stock is less (greater) than the purchase price, the selling shareholders will be liable for (or receive a benefit of) a long-term capital gain (or loss). In the case of a capital gain, the purchases price will exhibit a premium paid to the acquired shareholder. Alternatively, a long-term capital loss will be consistent with a discount of the purchase price allowed to the acquiring bank. Because the two effects work in opposite directions, the coefficients on PURCH and COMB may be either positive or negative.

The explanatory variables, their definitions and sample average and expected signs are summarized in Table 4. The results of the bank merger premium regression are presented in Table 5. The coefficient on TREAS has the expected negative sign and is significant at the five percent level while the coefficient on LNTOAST is negative but not significant. These results suggest acquiring banks have some desire to restructure the portfolio of the target bank. The magnitude of the coefficients suggests that an increase in TREAS (LNTOAST) of ten percent lowers the premium by about .07 (.06). The loan quality and loan protection variables, CHARGOFF and PROV, have the expected negative and positive sign, respectively, but neither is significant at the five percent level.

The coefficient on ROEQ has the expected positive sign and is significant at the five percent level, while the coefficient on CAPDEV has the expected negative sign and is significant at the five percent level. Since these variables capture firm performance and efficiency, they suggest well-managed, profitable firms command a

larger premium than less well run competitors. For example, the coefficient of ROEQ suggests that increases in the return on equity of 1% (from 12% to 13%) increase the merger premium by .05 (or, for example, from 1.45 to 1.50).

The coefficients on the regulatory variables UNIT and ELECT are consistent with regulation creating barriers to entry and limiting competition. To the extent regulation limits competition, the value of operating a bank increases and a higher premium is commanded in a merger. A state prohibition of multibank holding companies lowers premiums, probably by decreasing competition in the bidder market. While a firm's market share appears to have a negligible effect on the premium paid, the positive and significant coefficient on HERF suggests target firms in concentrated markets are more sought after.

The coefficients on PURCH and COMB are negative and statistically significant. This result suggests that the premium over

Table 4

Variable Definitions and Expected Coefficient Signs

Variable	Definition	Average	Expected Sign
TREAS	Ratio of U.S. Treasury Investments to Total Assets	.203	−
LNTOAST	Ratio of Net Loans to Total Assets	.482	?
PROV	Ratio of Loan Loss Provision to Net Loans	.007	+
CHARGOFF	Ratio of Loan Write-offs to Net Loans	.008	−
ROEQ	Ratio of Net Income to Equity Capital	.091	+
CAPDEV	(Ratio of Loan Loss Allowance plus Equity Capital to Assets) − .06	.030	−
UNIT	Equals 1 if acquired bank located in Unit Bank State and zero otherwise	.276	+
MULTI	Equals 1 if state law permits multibank holding companies and zero otherwise	.002	?
ELECT	Equals 1 if state law permits statewide electronic banking and zero otherwise	.397	−
MS	Ratio of bank's total deposits to that of the market; its market share	.179	+
HERF	The Herfindahl index of that target bank's market	.253	+
PURCH	Equals 1 if the acquisition was a purchase of the acquired bank	.609	?
COMB	Equals 1 if the acquisition involved a combination of cash and equity shares	.166	?

Table 5

Bank Merger Premium Regression Equation Results[a]

PREMIUM	=	1.927*	−	.771 TREAS*	−	.574 LNTOAST*	+	10.438 PROV
		(9.27)		(−2.76)		(−1.96)		(1.41)
	−	6.684 CHARGOFF	−	1.786 CAPDEV*	+	.510 ROEQ*	+	.096 UNIT*
		(−1.08)		(−1.76)		(2.10)		(1.66)
	−	.506 MULTI	−	.061 ELECT	−	.306 MS*	+	.392 HERF*
		(−1.26)		(−1.19)		(−1.66)		(1.70)
	−	.176 PURCH*	−	.171 COMB*				
		(−2.85)		(−2.20)				
R^2 = .121		Number of Observations = 264				F-statistic = 2.68*		

[a]t-statistics in parentheses below estimated coefficients.

*coefficient on variable or test statistic significant at the ten percent level.

book value is lower for mergers that involve full or partial cash payments. This negative effect is inconsistent with a tax premium being paid from the acquiring shareholders to the shareholders of the acquired bank. This finding is consistent with acquired bank shareholders' preferring a diversified investment portfolio or receiving a discounted purchase price due to a long-term capital loss treatment of the acquisiton.

The estimated merger premium model indicates that 1) acquiring banks pay a higher premium for well managed banks; 2) that banks in noncompetitive environments command a higher premium; and 3) acquiring banks intend to change the portfolio composition of target banks. This knowledge can be useful to target banks in assessing their value in a merger and the likelihood of being involved in a merger. A bidding bank can get an estimate of the premium paid to similar institutions.

Table 6 presents balance sheet, income statement and operating environment for two hypothetical institutions, the ABC Bank and the XYZ Bank, for which we calculated merger premiums. The medium of exchange is assumed to be stock. Both target banks are assumed to be located in a branch banking state that also permits multibank holding companies and statewide electronic banking. ABC Bank has more capital and Treasury securities but also a lower return on equity and more loan write-offs. As a result, we expect XYZ Bank to command a higher premium. In fact, our model suggests XYZ Bank will have a purchase price to book ratio of 1.25 in a merger, or $7.5 million, compared to a merger premium of 1.05 or $6.3 million for ABC Bank. By imputing value for the explanatory variables into the model, a merger premium for any target bank can be estimated.

Table 6

Estimated Merger Premiums for Hypothetical ABC and XYZ Banks Based on Regression Analysis

	ABC	XYZ
Size	$100,000,000	$100,000,000
Book Value	$6,000,000	$6,000,000
TREAS	.150	.200
LNTOAST	.500	.450
PROV	.007	.006
CHARGOFF	.006	.010
CAPDEV	.000	.020
ROEQ	.120	.110
UNIT	0	0
MULTI	1	1
ELECT	1	1
MS	.15	.15
HERF	.25	.25
PURCH	0	0
COMB	0	0
Estimated Premium	1.25	1.05

VI. Summary

This monograph has presented an analysis of the bank merger process and the premiums paid in bank mergers. By understanding the regulatory process a bidding bank can improve the probability of a merger being consummated; by evaluating the alternative merger structures, a combination can be made as attractive as possible to both bidding and target banks. In the first half of this monograph, we outlined and addressed some of the important issues in these areas.

The last part of our monograph analyzed bank merger premiums and how they relate to various balance sheet and income statement variables as well as regulatory, product market and structuring considerations. This analysis provides a valuable first step in assessing the purchase price of a target bank and can provide a starting point for price negotiation. In sum, this monograph has provided insight into the market valuation of commercial banks in merger situations and issues related to that valuation.

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